REMARKS

This is intended as a full and complete response to the Office Action dated June 15, 2006, having a shortened statutory period for response set to expire on September 15, 2006. Applicants have amended Paragraphs 62, 66-69 in the specification to correct several typographical mistakes. No new matter is added as a result of these amendments. In view of both the amendment present above and the following discussion, Applicants submit that none of the claims now pending in the application are obvious under 35 U.S.C. §103. Applicants respectfully request reconsideration of the claims pending in the application for reasons discussed below.

ELECTION OF CLAIMS

The Applicants acknowledge the election of claims 19-53. Claims 1-18 are cancelled without prejudice. The Applicants reserve the right to file continuing applications to further prosecute the non-elected subject matter.

OBJECTIONS

The specification is objected to as failing to provide proper antecedent basis for the subject matter in claim 50. Applicants have amended claim 50 to correct a typographical mistake - specifically, the word "exiting" has been amended to read "exciting". Thus, a portion of the amended claim 50 recites: "... wherein at least one of the etch steps comprises exciting a processing gas remotely from the processing chamber." Support for this can be found, for example, in paragraph 9 on page 3 of the specification, as filed. Thus, no new matter has been added as a result of this amendment. The objection to the lack of antecedent basis for claim 50 in the specification is therefore overcome.

Claim 19 is objected to because of informalities resulting from typographical mistakes. As suggested by Examiner, Applicants have amended claim 19 to overcome the objection.

REJECTIONS

A. Claims 21-27 and 41 under 35 U.S.C. §112, second paragraph

Claims 21-24 have been amended to clarify that the metal layer refers to the first metal layer of claim 19. Thus, rejections of claims 21-27 under 35 U.S.C. §112, second paragraph, have been overcome.

Claim 41 has been amended to recite "a passivation layer" to correct for insufficient antecedent basis. The rejection of claims 41 under 35 U.S.C. §112, second paragraph, is therefore overcome.

B. Claims 19-22, 24-26 and 45-46 under 35 U.S.C. §103(a)

Claim 19-22, 24-26 and 45-46 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park et al., United States Patent No. 5,478,766 (hereinafter, "Park") in view of Ning et al., United States Patent No. 6,440,753 (hereinafter, "Ning") and section 13.6, figure 13.6 of Van Zant, A Practical Guide to Semiconductor Processing; Semiconductor Services, 1986 (hereinafter, "van Zant"). Specifically, Examiner relies on Van Zant's Fig. 13.6 for illustrating that a processing chamber is conventional for etching process, and Ning for illustrating that it is commonly known that photoresist is formed on top of a metal layer and used to pattern the metal layer. Applicants respectfully disagree with the claim rejections for the following reasons.

Applicants submit that there is no motivation to combine Park's teaching with those of Van Zant or Ning. Park's invention is directed to a process for forming an improved thin film transistor structure with low optical leakage current while eliminating corrosion between certain material layers (see, e.g., Abstract of Park). Thus, Park teaches a structure in which a semiconductor layer of the thin film transistor can be isolated from a data line, and that the data line is composed of a material having a low chemical reactivity with indium tin oxide (ITO).

Park is not concerned with where or how the etching of various material layers take place, e.g., how many process chambers are used for etching the material layers, because Park is addressing a totally different problem from that of Applicants'. As such, there is no reason for one skilled in the art, after reading

Park, to look to either Van Zant or Ning for further guidance. Thus, Applicants submit that there is no motivation to combine Park with either Van Zant or Ning.

Furthermore, Applicants' claim 19 recites, in part: "etching a portion of the first metal layer in a processing chamber to expose a portion of the first silicon layer; and etching the exposed portion of the first silicon layer in the processing chamber", which is not taught or suggested by either Van Zant or Ning. Thus, Applicants' claim 19 is not obvious over Park, Van Zant and Ning, either singly or in combination.

Claims 20-22 and 24-26 depend, either directly or indirectly from claim 19. For reasons presented above, these claims are also not obvious over the combined teaching of Park, Van Zant and Ning.

As for independent claim 45, Examiner states that it would have been obvious to leave a substrate in the process chamber because the method of Park provides no reason to remove the substrate from the chamber. Applicants respectfully disagree.

Specifically, Applicants submit that Park is silent on the chambers used for etching metal or silicon - or for that matter, any chambers for deposition, patterning or etching in general, because the problem addressed by Park is totally different from that addressed by Applicants' invention. Park's invention provides for an improved thin film transistor with low leakage and minimal chemical reaction between different materials, and discloses a fabrication process involving many deposition, patterning and etching steps (see Summary of the Invention, col. 3-col. 4). There is no mention in Park regarding any specific chambers used for these different steps because it is simply not relevant to Park's invention. In other words, there is no appreciation in Park as to the importance or need to use one etch chamber for metal and/or silicon etching.

Furthermore, Park's silence on the chamber should not be interpreted as a suggestion to leave the substrate in the same chamber for subsequent process steps. Otherwise, if one were to follow that logic, one might even argue that - since Park is silent on what chambers should be used for deposition, patterning and etching, that it would be obvious to leave the substrate in the same chamber

for all these different process steps. Surely, that cannot be a correct interpretation of Park's silence on the chambers.

Therefore, Applicants respectfully submit that Park does not teach or suggest, either explicitly or by implication, the limitations recited in Applicants' claim 45, and thus, claim 45 and its dependent claim 46 are both patentable under 35 U.S.C. §103(a).

C. Claims 23 under 35 U.S.C. §103(a)

Claim 23 is rejected under 35 U.S.C. §103(a) as being unpatentable over Park, Ning and Van Zant, as applied to claims 19-22, 24-26 and 45-46, and further in view of Wolf. As presented above, neither claim 19 nor claim 45 is obvious over Park, Ning and Van Zant. The deficiencies in these references are not remedied by pg. 432 of Wolf. Therefore, claim 23 is also not obvious over Park, Ning and Van Zant in view of Wolf.

D. Claims 27 and 47 under 35 U.S.C. §103(a)

Claims 27 and 47 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park and Ning, as applied to claims 19-23, 25-26 and 45-46, and further in view of Kabansky, Patent Publication No.2002/0179248 (hereinafter "Kabansky").

As presented above, independent claims 19 and 45 are not obvious over Park and Ning. Since Kabansky does not teach or suggest the elements related to the etching of the first metal layer and the first silicon layer, as recited in claim 19; or "etching an upper metal layer of the film stack in a processing chamber to expose a portion of an underlying silicon layer; and etching a trench in the silicon layer without removing the substrate from the processing chamber," as recited in claim 45, both claims 19 and 45 are also not obvious over Park, Ning and Kabansky, either singly or in combination. Thus, claims 27 and 47, which depend from claims 19 and 45 respectively, are also not obvious over Park, Ning and Kabansky, either singly or in combination.

E. Claims 28-30, 32-34 and 51 under 35 U.S.C. §103(a)

Claims 28-30, 32-34 and 51 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park and Ning, as applied to claims 19-23, 25-26 and 45-46 above, and further in view of Nallan, Patent Publication No. 2002/0132488 (hereinafter "Nallan"). However, Nallan does not teach or suggest the elements recited in claim 19 relating to the etching of the first metal layer and the first silicon layer. Thus, Applicants submit that claim 19 is not obvious over Park, Ning and Nallan, either singly or in combination. Since claims 28-30 and 32-34 depend either directly or indirectly from claim 19, these claims are also not obvious, and thus, patentable over Park, Ning and Nallan.

Applicants have amended claim 51 to depend from independent claim 50. Since Nallan does not teach or suggest "etching a first layer of the film stack in a processing chamber to expose a portion of an underlying second layer; and etching the exposed portion of the second layer without removing the substrate from the processing chamber, wherein the first and second layers are different materials selected from the group consisting of metals, silicon, a-silicon, N+silicon or passivation nitride; and wherein at least one of the etch steps comprises exciting a processing gas remotely from the processing chamber", as recited in independent claim 50, Applicants submit that claim 50, and thus claim 51, is not obvious over Park, Ning and Nallan, either singly or in combination.

Therefore, claims 28-30, 32-34 and 51 are patentable over Park and Ning, and further in view of Nallan.

F. Claims 31 and 35-36 under 35 U.S.C. §103(a)

Claims 31 and 35-36 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park and Ning, as applied to claims 19-26 and 45-46 above, and further in view of Kropewnicki, United States Patent No. 6,440,864 (hereinafter "Kropewnicki").

Applicants submit that Kropewnicki does not remedy the deficiencies in Park and Ning because it does not teach the specific elements recited in claim 19. As such, claim 19, and thus, claims 31 and 35-36 (which depend indirectly

from claim 19), are also not obvious over Park, Ning and Kropewnicki, either singly or in combination.

G. Claims 37-44 and 48 under 35 U.S.C. §103(a)

Claims 37-44 and 48 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park and Ning, as applied to claims 19-26 and 45-46 above, further in view of Kropewnicki, Perlov, United States Patent No. 6,283,692 (hereinafter "Perlov") and Chien, United States Patent Publication No. 2002/0192957 (hereinafter "Chien").

As presented above, independent claims 19 and 45 are not obvious over Park, Ning and Kropewnicki. The deficiencies in these references are not remedied by either Perlov or Chien because neither of these references teaches or suggests the specific elements recited in Applicants' claims 19 and 45. Since claims 37-44 and 48 depend, either directly or indirectly, from claims 1 or 45, these claims are also not obvious over Park, Ning, Kropewnicki, Perlov and Chien, either singly or in combination, and are thus patentable under 35 U.S.C. §103(a).

H. Claim 49 under 35 U.S.C. §103(a)

Claim 49 is rejected under 35 U.S.C. §103(a) as being unpatentable over the modified teaching of Park, Ning, Kropewnicki, Perlov and Chien, as applied to claims 37-44 and 48 above, and further in view of Minnick, United States Patent No. 6,260,894 (hereinafter "Minnick").

As presented above, independent claim 45 is not obvious over Park, Ning, Kropewnicki, Perlov and Chien. Since Minnick does not teach or suggest the limitations recited in independent claim 45, claim 49, which depends indirectly from claim 45, is not obvious over the combined teaching of Park, Ning, Kropewnicki, Perlov, Chien and Minnick, and thus, patentable under 35 U.S.C. §103(a).

I. Claims 52-53 under 35 U.S.C. §103(a)

Claims 52-53 are rejected under 35 U.S.C. §103(a) as being unpatentable over the modified teaching of Park, as applied to claims 28-30, 32-34, 51 and 53 above, and further in view of Wolf, Figure 5, p.546-547.

As discussed above, independent claim 50 is not obvious over the teaching of Park. Since Fig. 5, p.546-547 of Wolf does not remedy the deficiency in Park, claim 50 is also not obvious over Park in view of Wolf. Thus, claim 52-53, which depend indirectly from claim 50, are also not obvious over Park and Wolf, either singly or in combination. Therefore, Applicants submit that these claims are patentable under 35 U.S.C. §103(a).

CONCLUSION

Thus, Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Mr. Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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